

What it really takes to capture the value of APIs

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APIs are the connective tissue in today's ecosystems. For companies that know how to implement them, they can cut costs, improve efficiency, and help the bottom line.

Application programming interfaces (APIs) were once largely limited to technical domains but have now become a significant engine of business growth. As the connective tissue linking ecosystems of technologies and organizations (see *Sectors without borders* on McKinsey.com), APIs allow businesses to monetize data, forge profitable partnerships, and open new pathways for innovation and growth.

Early adopters across industries are already using APIs to create new products and channels and improve operational efficiency. Within the automotive industry, for instance, APIs are used to embed efficiency data, driving statistics, route information and real-time alerts into dashboards. Some retailers are using APIs to set up multi-brand shopping platforms, track inventory, and help consumers locate stores. And a handful of banks are partnering with fintechs and retailers, among others, to develop APIs that help customers integrate banking data into bookkeeping and investment software, and provide faster internal access to a range of account information.

The value at stake is significant. McKinsey analysis has estimated that as much as $1 trillion in total economic profit globally could be up for grabs through the redistribution of revenues across sectors within ecosystems.[1] That makes APIs, which play a crucial role in linking organizations and technologies in ecosystems, a significant competitive battleground capability.

Furthermore, McKinsey estimates that the number of public APIs will triple over the next 12 months. As the functionality evolves, APIs will deliver more advanced services, such as powering the wider use of digital wallets and currencies, enabling machine learning to deliver more sophisticated operations, and supporting advanced conversational capabilities. In addition, API marketplaces and app stores will make it easier for users to access sophisticated business and consumer offerings.

However, the number of firms with mature API programs remains small. Most organizations have just a dozen or so APIs instead of the hundreds needed for a robust portfolio. And apart from a few

1 Venkat Atluri, Miklos Dietz, and Nicolaus Henke, "Competing in a world of sectors without borders," McKinsey, July 2017.

How APIs create value

Being unclear about the value of APIs can lead to lost focus and missed opportunities. We see three primary sources of value in API programs:

Simplifying the back end. APIs can connect internal systems relatively simply, allowing access to data—even when it's buried deep within legacy IT systems—quickly and repeatedly. This allows IT to simplify and automate tasks, and speed development.

Personalizing offers. Data aggregation and on-demand reporting through APIs can enable the delivery of personalized products and services, such as user authentication, fraud management, credit approvals, paying for services with cash or points, or finding and tracking subscriptions. For instance, S&P's Capital IQ API integrates key information, including investment research, companies' financials, credit ratings, global market data, and alpha and risk models, into personalized business applications for customers.

Ecosystem of innovation and engagement. The connective capability of APIs allows companies to access new value outside the business. API developers, for example, can create innovative products and services that tie into a company's systems. Advanced API capabilities allow developers to create a richer customer experience by pulling together a deeper array of data sets (rather than simply scraping data). Salesforce.com's partner ecosystem, for example, offers a developer-friendly toolbox that has spurred partners to build a huge number of employee and customer applications that rely on APIs. As a result, more traffic comes through the Salesforce APIs than through its website.

early movers, most do not have a formal API strategy, are unclear about the true value at stake, and are uncertain about how to implement a program that quickly maximizes consumer and business impact.

With the API market gaining momentum, institutions that move quickly to define a business-backed strategy and monetization model, institute the right governance, and drive adoption can create powerful new avenues for revenue growth and value.

Driving successful execution of the API strategy

In our experience, the most successful companies implement an API strategy by following these steps:

1. Identify—and prioritize—the value

APIs can generate massive amounts of value, but institutions first need to understand where best to apply them. Leaders in the field analyze where value can be destroyed or created, then they size the potential impact in terms of revenue, customer experience, and productivity.

Analyzing customer journeys is often the best way to identify API opportunities. One bank pulled business and technology professionals into a joint team and tasked them with identifying where APIs could help resolve several longstanding customer pain points.

Their review revealed opportunities to develop advanced calculator APIs capable of pulling from multiple sets of data, know-your-customer APIs, and product-aggregation APIs that could help customers access needed information more quickly and cut down on form-filling requests. The team then prioritized those opportunities that would deliver the most near-term impact, given existing capabilities. That data-driven approach gave the bank greater mission clarity and built momentum for the API program.

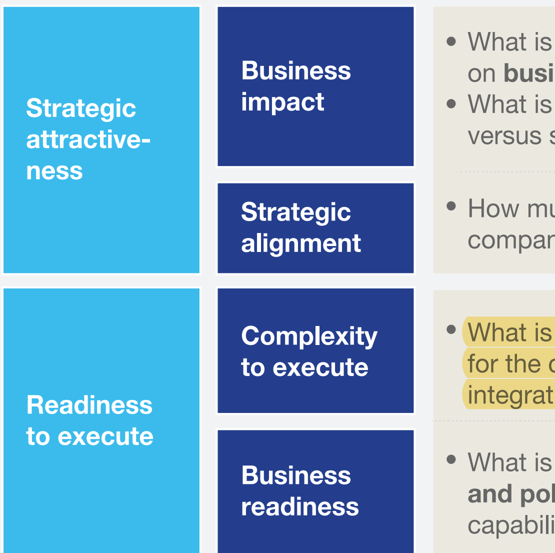
Understanding what it takes to develop the APIs requires a deep knowledge of the data environment, especially back-end systems where the API work is often done. Once the best opportunities are identified, API developers can identify which and how many APIs are necessary to unlock that value. A prioritization matrix can help whittle down the list of APIs based on the answers to a specific set of questions about strategic value and implementation complexity, taking technical, privacy, security, and regulatory concerns into account (Exhibit 1).

2. Manage monetization actively

With a clear vision in place, companies then need to focus on what they need to implement in order to capture the value they've identified, a step many organizations surprisingly tend to shortchange. Determining what and how to charge, for example, requires quantifying how much the underlying data or service is worth (often based on how proprietary it is and its role

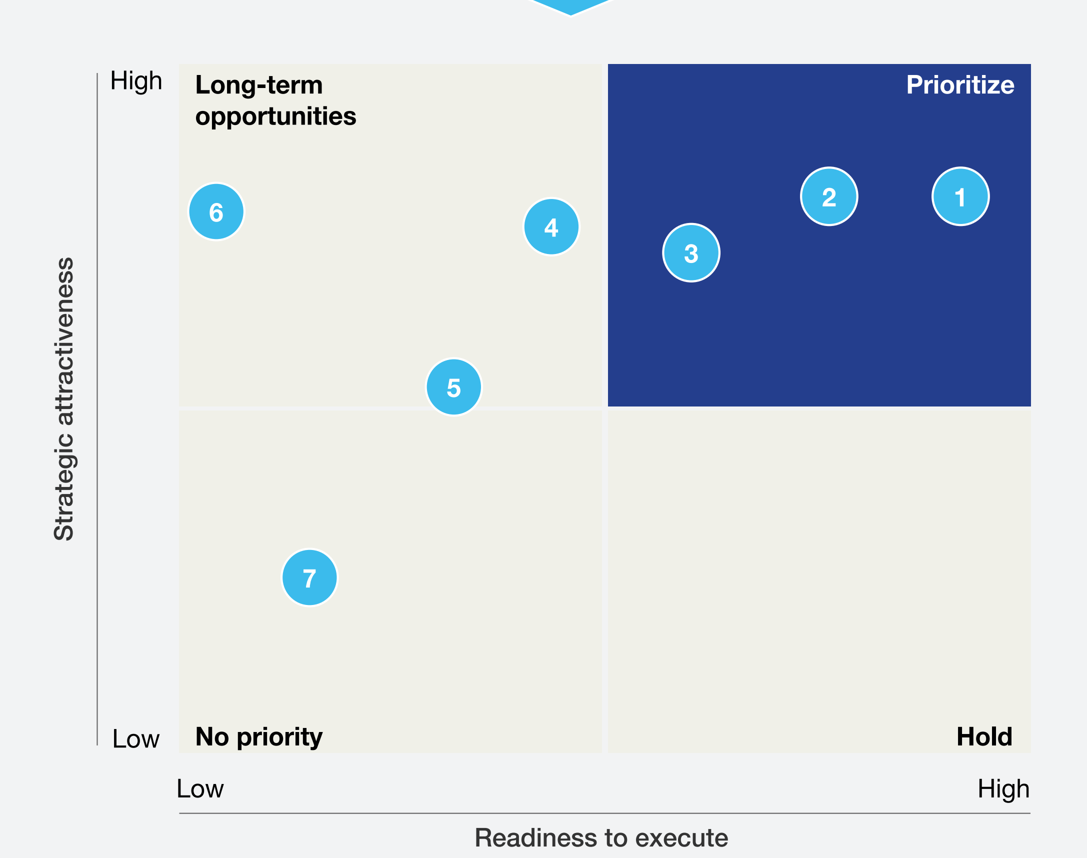
Exhibit 1

A disciplined process to evaluate APIs



Main criteria or question

- What is the quantitative impact of the capability on **business objectives and customer needs**?
- What is the **differential impact of using APIs** versus status quo?
- How much will the capability contribute to the company's **strategic goals**?
- What is the **technical difficulty** in building APIs for the capability (e.g. back-end systems and integration needs)?
- What is the readiness, from a **business, legal, and policy** standpoint, to deliver APIs for this capability?



SOURCE: McKinsey analysis

in generating value), the revenue streams the APIs open up, and how much developers and users might be willing to pay to access them. Those answers, combined with the company's overarching strategy, will inform which monetization arrangements to pursue with different partners.

Options typically include "pay for use," where developers pay based on usage volume; revenue sharing models, where the API partner or developer gets paid for the incremental business they generate for the API provider; and "freemium," when it's strategically valuable to scale a product's or brand's reach.

In determining which monetization approach to use, providers should think about how their data and APIs can add distinctive value for different audiences. Those insights can help them put together thoughtful partnerships. The traffic app Waze, for instance, uses APIs to create a two-way exchange between municipalities and other partners to share data on road closures, accidents, construction delays, and potholes. Similarly, American Express uses its Pay with Points APIs to create mutually beneficial partnerships with merchants, arrangements that have increased retail sales, card spend, and brand loyalty.

That focus on monetization of APIs should extend to internal functions as well. Effectively using APIs can reduce operational or technology costs by simplifying and accelerating development. One bank, for instance, created a library of standardized APIs that software developers could use as needed for a wide variety of data-access tasks rather than having to figure out the process each time. Doing so reduced traditional product-development IT costs by 41 percent and led to a 12-fold increase in new releases. Seeing these kinds of tangible benefits makes it easier for business leaders to increase their expectations of their software engineers to develop better products more efficiently. Quantifying that potential value in potential savings, efficiencies, and FTE reassignment is crucial in building a business case to invest in developing APIs.

As teams implement APIs that break down barriers between systems and organizations, they can continually unlock new sources of value that weren't evident at the beginning of a project. One large financial institution, for example, used APIs to help connect systems with a wealth-management institution it had acquired. One set of APIs was used to connect the interface on the web to the wealth management company's back-end systems, while another set linked the master customer data so that customers could be immediately authenticated and didn't have to re-register. The APIs greatly simplified the integration process, eliminating the need to rewrite any applications and allowing each system to operate until it was time to merge them. The organization could then offer customers an integrated solution rather than a series of individual products. For this reason, the monetization process needs active and ongoing management to continually identify opportunities that APIs create.

3. Create a centralized governance and organizational model

Using APIs effectively requires a new way of thinking about partnerships, a new way of business and technology working together, and a new pace of development, funding, and coordination.

It also comes with new challenges to data privacy and security (see "Opening up your APIs and keeping cybercrooks out" on McKinsey.com).

Establishing a centralized body, such as an API Center of Excellence (CoE), is crucial for overseeing API design and development across the organization. With the help of visual dashboards and related tools, the CoE can manage all the APIs in the catalog to avoid duplication, enable reuse, and assist with developer access. Effective API leadership establishes clear decision rights (about what APIs to develop, for example, or how to resolve conflicts) and identifies both what API capabilities are needed and what new APIs the business needs to evolve. At one large business, the API CoE reported to the chief technology officer.

The CoE's role in establishing security standards and protocols is especially important. These include two-factor authentication, access-management controls, and appropriate network monitoring to detect bots and other unwanted cyberactivity. A clear set of data and security protocols provides the necessary standardization to ensure interface compatibility, simplify management, and more effectively manage risk.

CoE governance also extends to managing funding requests. The most advanced organizations dedicate specific funding to develop a set number of APIs while maintaining enough flexibility to seize on new ideas that emerge. They continually vet and reprioritize their portfolio to ensure resources support the highest-value opportunities.

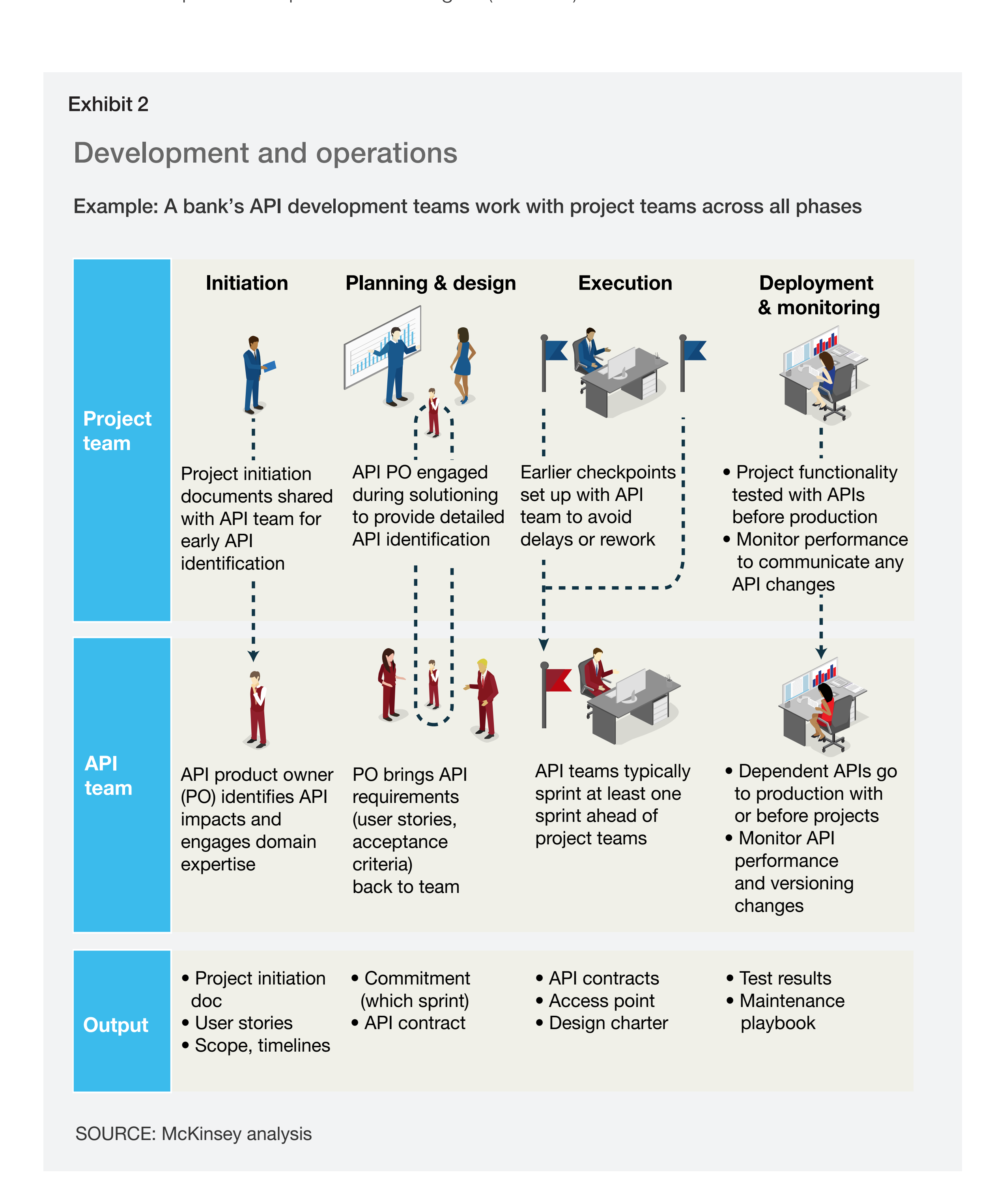
Some CoEs launch specialized hubs to court crucial developer relationships. Success requires sustained commitment to ongoing platform support and API development to maintain the confidence of external developers and partners. For example, one bank located near a high-tech hotbed created an open banking platform that provides developers with access to data and payment operations that they can integrate into their own platforms and applications. The bank underlines this commitment by also providing a technical dashboard view of API usage and processing volumes, and the ability to manage API keys and access with bank-grade authentication within the digital platform.

Finally, the CoE needs to ensure that the API program is staffed effectively. Leaders with experience directing API portfolios are crucial to establishing the necessary governance and development approach. Software engineers and use-case specialists must be able to turn user stories into executable APIs and integrate those APIs into products and systems, and "translators" are needed to convert business needs into technical requirements and help the business understand any relevant technological constraints.

4. Drive usage and adoption to gain scale

Like any product or service, a successful API program requires a thoughtfully managed adoption campaign backed by rigorous performance management. The best approaches begin with the initial customer and developer pilots, advance to formal production requirements, then orchestrate and oversee the wider-adoption push to achieve critical mass.

It's important to find pilot partners who have an appetite for innovation and are willing to invest the time. API teams work closely with project teams to continually refine and iterate the API prototype until it meets predefined performance targets (Exhibit 2).



Rigorous, ongoing performance measurement should focus on relevant usage and traffic metrics, such as the number of user registrations, the percentage of users by customer type, and the number of requests over time. This provides teams with the insight needed to make targeted improvements. Tracking data errors or API response times helps to test and validate desired strategic and customer outcomes. One institution prioritized tracking the processing time per API to ensure customer journey targets were being met.

Historical trends and metrics that gauge product or service performance also allow teams to manage the API portfolio as a whole, letting them know which APIs to promote and which to retire. Such regular service catalog grooming cuts down on bloat and ensures APIs are well organized and easily discoverable.

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API management is emerging as a crucial capability to navigate the digital age. But only those that master its implementation will be able to sustain the value.

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